Comparison of Actions by CALFED and CCMP

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Mine Drainage	loadings to the Delta and it's tributaries by source control or treatment of mine drainage at inactive and abandoned mine sites. Action targeted at the Upper Sacramento River and tributaries to the Upper Sacramento River that are major contributors of copper, cadmium, and zinc loadings. Reduce toxic effects of mercury loadings to the Delta and its tributaries by source control and/or treatment of mine drainage at inactive and abandoned mine sites.	Reduce toxic loadings from mines (PO-2.7) Identify and control source and sinks of selenium and mercury where they are accumulating in aquatic populations in the Estuary (PO-2.3)
Urban and Industrial Runoff	Reduce toxic effects of copper, zinc, and cadmium loadings to the Delta and its tributaries from urban and industrial runoff. Reduce toxicity from the pesticides chlorpyrifos and diazinon in the Delta and its tributaries through source control of urban and industrial runoff. Reduce toxic effects of nutrient loadings and consequently, oxygen depletion in the Delta and its tributaries through source control of urban and industrial runoff.	

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Urban and Industrial Runoff	Reduce the impacts of sediment loading, and subsequent turbidity to the ecosystem of the Delta and its tributaries and to urban drinking water sources in the Delta, through source control of urban and industrial runoff.	Improve the management and control of urban runoff from public and private sources (PO-2.4) Develop and implement guidelines for site planning and BMPs (LU-3.2) Develop control measures to reduce pollutant loadings from energy and transportation systems (PO-2.5)
Wastewater and Industrial Discharges	Reduce the impact of domestic wastes and hence pathogens to Delta urban drinking water supplies and recreational water uses, from boat discharges within the Delta and Delta tributaries. Reduce the toxic impacts of oxygen depleting substances and copper and mercury loadings to the Delta through cost effective source control and treatment of industrial and municipal wastewater discharges. Action for oxygen depleting substances should be targeted at the Lower San Joaquin River and copper and mercury loadings at the Suisun Bay and Carquinez Straight area.	Develop, implement, and enforce stringent regulations to control discharges of ship ballast water within the Estuary or adjacent waters (AR-2.1). Address and resolve, as appropriate, the impacts on water reclamation and water conservation caused by the discharge of brine from self-regenerating water softeners and other sources into the wastewater stream (WU-1.6) Establish specific goals for reducing the discharge of toxic pollution over time and discourage reliance on toxic materials. All dischargers should implement measures to reduce pollutants at their source (PO-1.1) Pursue a mass emissions strategy to reduce pollutant discharges into the Estuary from point and nonpoint sources and to address the accumulation of pollutants in estuarine organisms and sediments (PO-2.1).

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Wastewater and Industrial Discharges	Reduce the toxic impacts of selenium loadings to the Delta through source control and treatment of industrial discharges. Action should be targeted at industries that discharge selenium to the Suisun Bay and Carquinez Straight area. Reduce the toxic effects of ammonia entering the Delta and its tributaries from waste water treatment plant discharge through improved treatment.	Identify and control source and sinks of selenium mercury where they are accumulating in aquatic populations in the Estuary (PO-2.3) If practical, use existing facilities and develop new facilities in order to deliver reclaimed and recycled water for beneficial reuse (WU-1.5).
Agricultural Drainage	Reduce toxic effects of selenium loadings to the Lower San Joaquin River and Delta by controlling sources of selenium in agricultural sub-surface drainage.	Establish specific goals for reducing the discharge of toxic pollution over time and discourage reliance on toxic materials. All dischargers should implement measures to reduce pollutants at their source (PO-1.1) Reinforce existing programs and develop new incentives where necessary to reduce selenium levels in agricultural drainage (PO-1.5) Identify and control source and sinks of selenium and mercury where they are accumulating in aquatic populations in the Estuary (PO-2.3)

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Agricultural Drainage	Reduce salinity for agricultural source water in the South Delta through improved outflow patterns and water circulation in the Delta. Reduce the toxic effects of carbofuran, chlorpyrifos, and diazinon in the Delta and its tributaries through source control of agricultural surface drainage and Delta island. Reduce the toxic effects of ammonia entering the Delta and its tributaries through source control of agricultural surface drainage.	Develop a comprehensive strategy to reduce pesticides coming into the Estuary (PO-1.6). Improve the management and control of agricutural sources of toxic substances (PO-2.6) Improve agricultural practices that reduce introduction of pollutants into the Estuary (PO-1.4) Pursue a mass emissions strategy to reduce pollutant discharges into the Estuary from point and nonpoint sources and to address the accumulation of pollutants in estuarine organisms and sediments (PO-2.1). Governmental, agricultural, public and environmental interests should work together to develop a mechanism to ensure implementation of Efficient Agricultural Water Management Practices (WU-1.1). New methods of agricultural water conservation should be reached through pilot projects and implemeted where feasible (WU-2.2).

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Water Treatment	Improve treated drinking water quality (including reduction in formation of disinfection byproducts) through treatment to reduce concentrations of total organic carbon, pathogens, turbidity, and bromides Improve total organic carbon, pathogens, turbidity and bromides at domestic water supply intakes.	
Unknown Toxicity	Identify and implement actions to address potential toxicity to water and sediment within the Delta and its tributaries.	
Water Management	Reduce the concentration of salinity entering the Delta and its tributaries during low flow periods.	
Various Sources affecting Aquatic Resources (CCMP only)		Refine and coordinate existing monitoring programs to: (i) better evaluate ecosystem responses to immediate, phased, and long-term water quality and flow standards; (ii) more fully characterize ecosystem processes and properties; and (iii) enhance predictive capabilities of ecosystem models (AR1.1). Prohibit the intentional introduction of aquatic exotic species into the Estuary and its watershed (AR-2.2).

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Various Sources affecting Aquatic Resources (CCMP only)		Control problem exotic species already in the Estuary (AR-2.3). Develop programs to educate the public about the problems with exotic species and their incidental transport or introduction (AR-2.4). Strengthen programs to reduce poaching of species within the Estuary (AR-2.5). Review and modify, if necessary, harvest regulations for aquatic species of concern (AR-2.6). Identify and control sources and sinks of contaminants that may affect fish populations or ecosystem health (AR-2.7). Research and develop methods to reduce incidental take of non-target species in commercial activities (AR-2.8). Prepare/update recovery plans for all listed species. This includes designation of critical habitat (AR-3.1). Monitor status of all candidate species and list them if warranted (AR-3.2). Initiate consultations with all federal agencies that propose or are continuing actions that may affect listed species (AR-3.3).

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Various Sources affecting Aquatic Resources (CCMP only)		Review all non-federal proposals and continuing actions that may result in take of listed species and take appropriate actions (AR-3.4). Investigate the feasibility of developing a Habitat Conservation Plan (or Plans) for the Bay and Delta that promotes the recovery of the species and addresses incidental take associated with non-federal actions (AR-3.5). Adopt listed species recovery as a policy for all public agencies whose actions affect them (AR-3.6). Adopt water quality and flow standards and operational requirements designed to halt and reverse the decline of indigenous and desirable non-indigenous estuarine biota and contribute to the attainment of developing a comprehensive plan to optimize the management of estuarine aquatic resources that addresses the needs of all users and promotes an equitable balance (AR-4.1). Establish conditions on industrial facilities to control entrainment of eggs, larvae, and juvenile fish (AR-4.2). Design and install gates or other facilities at channel openings known to be associated with the loss of fishes (AR-4.3)

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Various Sources affecting Aquatic Resources (CCMP only)		Design, install, and effectively operate fish screens or other protective devices at diversions associated with fish mortality (AR-4.4). Improve screen efficiencies at state and federal water project pumping and fish salvage facilities (AR-4.5). Develop and implement a management plan to reduce predation in Clifton Court Forebay and near the John E. Skinner Delta Fish Protection Facility (AR-4.6). Protect existing shaded riverine aquatic habitats to ensure no net loss of acreage, lineal coverage, and habitat value within the Estuary. Activities within the "legal Delta" should be conducted consistent with California's Delta Levees Flood Protection Act of 1988 (AR-4.7). Increase the quantity of shaded riverine aquatic habitat by 1,000 percent (AR-4.8). Promote the maintenance and development of tule islands, tidal wetlands, and offshore berms to protect against erosion and to provide detrital input and juvenile fish nursery habitat (AR-4.9). Work with the dredging and flood control interests to reduce or eliminate practices that adversely affect fish habitat (AR-4.10).

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Various Sources affecting Aquatic Resources (CCMP only)		Identify and protect remnant stream habitats containing indigenous and endemic fishes and other natives (AR-4.11). Protect and maintain marshes, wetlands, shallow water areas, and tidal sloughs to protect fisheries values (AR-4.12). Based on information developed in Action AR-1.1, identify alternative long-term water quality and flow standards, water management measures, operational changes, habitat improvements, and facilities as needed to manage the estuarine aquatic resources (including water) for optimum benefit (AR-5.1). Develop an EIR/EIS to display the alternatives and trade-offs identified in Action AR-5.1 and to initiate the selection of a preferred alternative (AR-5.2). Implement the alternative from Action AR-5.2 (including the adoption of long-term water quality and flow standards and operational requirements) that best optimizes conditions for aquatic resources, efficiently conserves scarce water resources, and restores an equitable balance to the estuarine ecosystem (AR-5.3). Provide necessary instream flows and temperatures to benefit salmon and steelhead in the Central Valley to support the implementation of the state and federal mandates to double the natural prod. of anadromous. fish (A

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Various Sources affecting Aquatic Resources (CCMP only)		Implement the Upper Sacramento River Management Plan (AR-6.2). Develop and implement the San Joaquin River Management Plan to identify reservoir operational changes, habitat improvement measures, and other action items to improve habitat and health of the aquatic ecosystem in the San Joaquin River watershed (AR-6.3). Screen upstream diversions that individually or cumula tively result in significant mortality to fishes that utilize the Estuary (AR-6.4) Seek damages for all impacts to trust resources from spills and discharges affecting them and use the funds to improve the resource base (AR-6.5).
Various Sources affecting Wildlife (CCMP only)		Preserve, create, restore, and manage large, contiguous expanses of tidal salt marsh and necessary adjacent uplands for the California clapper rail and the salt marsh harvest mouse (WL-1.1). Complete the expansion of the San Francisco Bay National Wildlife Refuge and its satellite refuges and acquire the proposed Stone Lakes National Wildlife Refuge (WL-1.2). Implement concerted efforts to acquire wetlands already degraded or destroyed and restore them so that wetlands in the Estuary are increased by 50 percent (WL-1.3)

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Various Sources affecting Wildlife (CCMP only)		Restore tidal marshes in the San Francisco Bay (WL-1.4). Identify and convert or restore non-wetland areas to wetland or riparian-oriented wildlife habitat (WL-1.5). Prepare a comprehensive management plan for the San Francisco Bay National Wildlife Refuge (WL-2.1) Enhance the biodiversity within all publicly owned or managed wetlands and other wildlife habitats as appropriate (WL-2.2). Complete and implement a wildlife habitat restoration and management plan for the Estuary (WL-2.3). Implement predator control programs in areas where introduced predators are a constraint to maintenance and restoration of native populations (WL-3.1). Update, and, where necessary, prepare recovery plans for all listed wildlife species (WL-4.1). Provide secure colony sites, allow for population recovery, control predators, and protect adjacent foraging areas for the California least tern (WL-4.2).

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Various Sources affecting Wildlife (CCMP only)		Monitor the status of all candidate species and list them if warranted (WL-4.3). Continue hunting closures to protect the Aleutian Canada goose. Investigate the need for hunting closures for other waterfowl species as necessary (WL-4.4). Implement a captive breeding program for the clapper rail (WL-4.5).
Various Sources affecting Wetlands (CCMP only)		Prepare Regional Wetlands Management Plan(s) (WT-1.1). Encourage geographically focused cooperative efforts to protect wetlands (WT-1.2). Establish a comprehensive state wetlands program for the Estuary which, in addition, includes a coordinated regulatory and policy framework (WT-2.1). Increase enforcement efforts to curtail illegal wetland alteration and to ensure compliance with permit conditions (WT-2.2). Develop and adopt uniform compensatory mitigation policies (WT-2.3).

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Source of Water Quality Problem	CALFED Actions	CCMP Actions
Various Sources affecting Wetlands (CCMP only)		Improve wetlands protection provided under the Clean Water Act (WT-2.4). Expand wetlands acquisition programs, or establish a new Estuary-specific wetlands acquisition program (WT-3.1). Expand existing private, state and federal financial and technical assistance programs to individual landowners (WT-3.2). Encourage wetland protection by-laws (WT-3.3). Identify and convert/restore non-wetland areas to wetland- or riparian-oriented wildlife habitat. Purchase non-wetland areas to create wetlands. This action should be guided by and consistent with the Regional Wetlands Management Plan (WT-4.1).
Various Sources affecting Water Use (CCMP only)		Water reclamation and reuses feasibility studies should be completed by each Publicly Owned Treatment Water Works (POTW), municipality, and/or water district (WU-1.1). Municipalities and counties should adopt water reclamation ordinances encouraging the use of reclaimed water, to the maximum extent practicable, while providing for the protection of public health and the environment (WU-1.2).

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Various Sources affecting Water Use (CCMP only)		Local entities interested in implementing reclamation projects should develop and conduct public education programs (WU-1.3). Ensure that state water quality standards and Basin Plans encourage water reclamation and reuse (WU-1.4). Maximize conjunctive use of water through groundwater recharge (WU-2.4) Study storage of surface water on Delta islands (WU-2.5). Evaluate and adopt, where appropriate, mechanisms to manage groundwater to protect the long-term integrity of groundwater basins (WU-2.6). More fully utilize the existing and expand, where approp, the legal and regulatory framework to facilitate voluntary water-marketing agreements among agricultural, urban, and environmental interests (WU-3.1) The state should continue to negotiate with the federal government to determine whether, and to what extent, it is appropriate for the federal government to transfer the ownership or operational control of the Central Valley Project (CVP) to a non-federal entity (WU-3.2). Water conservation feasibility studies shall be completed and implem. by municipalities and/or water dist.(WU-2.3)

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Pollution Prevention and Reduction (CCMP only)		Recommended institutional and financial changes needed to place more focus on pollution prevention (PO-1.2). Develop environmental audit procedures for all significant users and/or producers of toxic substances (PO-1.3) Adopt water quality objectives that effectively protect estuarine species and human health (PO-2.2) Establish a model environmental compliance program at federal facilities within the jurisdiction of the Estuary Project (PO-2.8). Clean up contaminants presently affecting fish, wildlife, their habitats, and food supplies (PO-3.1). Expedite the clean up of toxic hot spots in estuarine sediments (PO-3.2).
Dredging and Waterway Modification (CCMP only)		Conduct studies, research and models of sediment dynamics (DW-1.1). Conduct studies on sediment changes aimed to define accumulation and erosion processes in marsh and mudflat areas (DW-1.2).

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Dredging and Waterway Modification (CCMP only)		Adopt policies to manage modification of estuarine sediment production, movement, and deposition (DW_1.3). Conduct laboratory and field bioaccumulation investigations and studies on suspended sediment effects on sensitive life stages throughout the food chain (DW-2.1). Develop and set sediment quality objectives (DW-2.2) Develop a dredge project needs assessment and, as necessary, a prioritization plan, including structural and nonstructural methods to minimize volume requirements (DW-3.1) Identify dredged material reuse and non-aquatic disposal opportunities and constraints (DW-3.2). Develop regulatory land use procedures to promote reuse of dredged material, wetlands restoration and/or creation, and other beneficial uses (DW-3.3). Identify the aquatic and terrestrial resources that are affected by dredging and disposal and are to be protected in the Bay and Delta (DW-3.4).

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Dredging and Waterway Modification (CCMP only)		Designate dredged material reference sites for use in development of sediment testing protocols (DW-3.5). Evaluate retention and removal needs for derelict structures in the Bay and Delta (DW-3.6). Adopt regulatory and management policies for Estuary dredging activities and develop dredging and disposal projects that are consistent with the State's existing policies in the San Francisco Bay Plan and in the San Francisco Bay and Central Valley Basin Plans (DW-3.7). Identify dredged material disposal options, including cost estimates and alternative disposal methods. Conduct periodic review as necessary (DW-4.1). Conduct modeling and field studies to determine the saltwater intrusion impacts caused by dredging (DW-4.2). Revise Public Notice 87-1, "Interim Testing Procedures for Evaluating Dredged Material Suitability for Disposal in San Francisco Bay," and develop testing procedures and protocols for ocean and upland environments (DW-4.3). Determine areas subject to flooding and erosion and identify causes (DW-5.1).

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Dredging and Waterway Modification (CCMP only)		Implement waterway modification policies that protect shoreline areas from detrimental flooding and erosion while maintaining natural resource values (DW-5.2). Establish a program to acquire diked historic baylands listed as buffer areas for coastal flooding and sea level rise (DW-5.3).
Land Use (CCMP only)		Local General Plans should incorporate watershed protection plans to protect wetlands and stream environments and reduce pollutants in runoff (LU-1.1). Amend CEQA Guidelines to add simple and concise criteria for assessing the cumulative environmental impacts on the Estuary when adopting or reviewing General Plans (LU-1.2). Integrate protection of the Estuary with other state land use-related initiative (LU-1.4). Regional agencies should assist in identifying and developing consistent policies that provide an integrated framework for local governments to protect the resources of the Estuary (LU-2.1)

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Land Use (CCMP only)		Adopt policies and plans to promote compact, contiguous development, in both the nine-county Bay Area and the three-county Delta region (LU-2.2). Compile and analyze data pertaining to future population and land use change in the nine-county Bay Area and the three-county Delta region to provide information for improved decision making (LU-2.3). Prepare and implement Watershed Management Plans that include the following complementary elements: 1) wetlands protection; 2) stream environment protection; and 3) reduction of pollutants in runoff (LU-3.1). Educate the public about how human actions impact the Estuary (LU-4.1). Provide training workshops for local government officials and other key stakeholders to improve land use decision making that affects the Estuary (LU-4.5). Create economic incentives that encourage local governments to take action to implement measures to protect and enhance the Estuary (LU-5.1)

Source of Water Quality Problem	CALFED Actions	CCMP Actions
Land Use (CCMP only)		Develop new funding mechanisms to pay for plans, physical improvements, and program administration to protect the resources of the Estuary (LU-5.2)
Public Involvement and Education (CCMP only)		Promote, support, and cooperate with existing public education and involvement programs concerned with protecting and restoring the Estuary's biological resources (PI-2.3). Assist in the development of long-term educational programs designed to prevent pollution to the Estuary's ecosystem and provide assistance to other programs as needed (PI-2.5).
Research and Monitoring (CCMP only)		Establish and operate a San Francisco Estuarine Institute for research on and monitoring of land use, biological resources, flow regime, pollutants , dredging and waterway modification (RM-1.1)